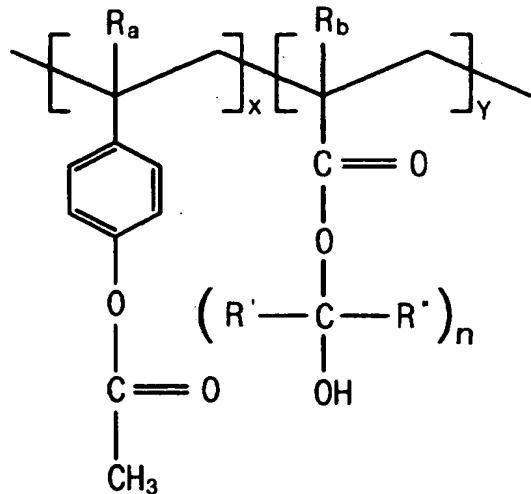


What is claimed:

1. A compound comprising the structure of the following Formula 1:

Formula I



5

wherein:

R_a, R_b are each independently hydrogen or methyl;

R' and R'' are each independently selected from the group consisting of -H, -OH, -OCOCH₃, -COOH, -CH₂OH, alkyl having 1 to 6 carbon atoms and alkoxy alkyl having 1 to 6 carbon atoms;

10 n is an integer ranging from 1 to 5;

x and y each represent mole fractions ranging from 0.01 to 0.99.

2. The compound according to claim 1 which is poly[acetoxy styrene-(2-hydroxyethyl acrylate)], wherein Ra and Rb are each 15 independently a hydrogen, R' and R'' are each independently a hydrogen, n is 2, and x, y are each independently 0.5.

3. The compound according to claim 1 which is poly[acetoxy styrene-(3-hydroxypropyl acrylate)], wherein Ra and Rb are each 20 independently a hydrogen, R' and R'' are each independently a hydrogen, n is 2, and x, y are each independently 0.5.

4. The compound according to claim 1 which is poly[acetoxy styrene-(4-hydroxybutyl acrylate)], wherein Ra and Rb are each independently a hydrogen, R' and R" are each independently a hydrogen, n is 2, and x, y are each independently 0.5.

5

5. The compound according to claim 1 which is poly[acetoxy styrene-(2-hydroxyethyl methacrylate)], wherein Ra and Rb are each independently a hydrogen, R' and R" are each independently a hydrogen, n is 2, and x, y are each independently 0.5.

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6. The compound according to claim 1 which is poly[acetoxy styrene-(3-hydroxypropyl methacrylate)], wherein Ra and Rb are each independently a hydrogen, R' and R" are each independently a hydrogen, n is 2, and x, y are each independently 0.5.

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7. The compound according to claim 1 which is poly[acetoxy styrene-(4-hydroxybutyl methacrylate)], wherein Ra and Rb are each independently a hydrogen, R' and R" are each independently a hydrogen, n is 2, and x, y are each independently 0.5.

20

8. A method for preparing a compound of Formula 1 of claim 1, which comprises:

reacting acetoxy styrene monomer, hydroxy alkyl acrylate monomer in a solvent to obtain a product; and

25

polymerizing the product with a polymerization initiator.

9. The method according to claim 8, wherein the solvent is selected from the group consisting of tetrahydrofuran, toluene, benzene, methylethylketone, dioxane and mixtures thereof.

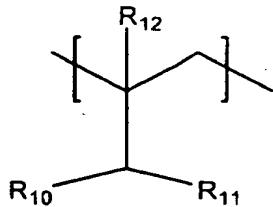
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10. The method according to claim 8, wherein the polymerization initiator is selected from the group consisting of 2,2'-azobisisobutyronitrile, acetylperoxide, lauryl peroxide, t-butylperoxide, and mixtures thereof.

11. The method according to claim 8, wherein the polymerization reaction is carried out at a temperature ranging from about 50 to about 90°C.

12. An anti-reflective coating composition comprising a compound of
5 Formula 1 of claim 1 and a compound of the following Formula 2:

Formula 2



wherein,

10 R₁₀ and R₁₁ are each independently C₁₋₁₀ alkoxy or C₁₋₁₀ alkyl, and R₁₂ is hydrogen or methyl.

13. The anti-reflective coating of claim 12 wherein the compound of
15 Formula 1 is poly[acetoxystyrene-(2-hydroxyethylacrylate)].

14. The anti-reflective coating of claim 12 wherein the compound of
20 Formula 1 is poly[acetoxystyrene-(3-hydroxypropylacrylate)].

15. The anti-reflective coating of claim 12 wherein the compound of
25 Formula 1 is poly[acetoxystyrene-(4-hydroxybutylacrylate)].

16. The anti-reflective coating of claim 12 wherein the compound of
20 Formula 1 is poly[acetoxystyrene-(2-hydroxyethylmethacrylate)].

17. The anti-reflective coating of claim 12 wherein the compound of
25 Formula 1 is poly[acetoxystyrene-(3-hydroxypropylmethacrylate)].

18. The anti-reflective coating of claim 12 wherein the compound of
20 Formula 1 is poly[acetoxystyrene-(4-hydroxybutylmethacrylate)].

19. A method for preparing an anti-reflective coating comprising:
dissolving a compound of Formula 1 of claim 1 and a compound of Formula
2 in an organic solvent to obtain a solution;

filtering the solution to obtain a filtrate;

5 coating the filtrate onto a lower layer of the substrate resulting in a coated
layer disposed on the lower layer; and
hard-baking the coated layer.

10 20. The method according to claim 19, wherein said organic solvent is
selected from the group consisting of ethyl-3-ethoxypropionate, methyl
3-methoxypropionate, cyclohexanone, and propyleneglycolmethylether acetate.

15 21. The method according to claim 19, wherein said organic solvent is
used in an amount ranging from about 200 to about 5,000 wt. % based on the total
weight of the anti-reflective coating resin used.

22. The method according to claim 19, wherein the hard-baking step is
carried out at a temperature ranging from about 100 to about 300°C.

20 23. A semiconductor device prepared from the anti-reflective coating
composition of claim 12.

24. A semiconductor device prepared from the anti-reflective coating
composition of claim 13.

25 25. A semiconductor device prepared from the anti-reflective coating
composition of claim 14.

30 26. A semiconductor device prepared from the anti-reflective coating
composition of claim 15.

27. A semiconductor device prepared from the anti-reflective coating
composition of claim 16.

28. A semiconductor device prepared from the anti-reflective coating composition of claim 17.

29. A semiconductor device prepared from the anti-reflective coating 5 composition of claim 18.